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EXAMINER

KAO, JUTAI

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/551,731 | Applicant(s) BRUNINGHAUS ET AL. | |
| | Examiner JUTAI KAO | Art Unit 2473 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12, 17-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12, 17-19 and 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see after final amendments, filed 09/17/2010, with respect to the rejection(s) of claim(s) 9-11, 17-19 and 21-23 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Billhartz (US 2004/0203820), Desai and Cloutier.

Billhartz replaces the Jouppi reference previously used. Regarding Desai, which teaches a switch instead of a mobile device as claimed, the applicant argues that the switch in Desai has complete controls of its internal transmission medium bandwidth while Jouppi's terminals do not. In the new grounds of rejections, Billhartz teaches mobile terminals in an ad hoc network that consults with other terminals of the ad hoc network to determine the available transmission medium capacity. The mobile stations communicate with one another to act as a set of distributed switches (see paragraphs [0054]-[0058]). Therefore, it is reasonable to look to Desai's switch to consider channel capacities allocated to traffic of lower service class as available capacities in order to allow traffic of higher service class to be transmitted first.

Regarding Cloutier, the applicant argues that the wireless station delays the establishment of the new link based on the decision made by a base station. However, the claim does not recite that the wireless station making the decision to delay the establishment. The claim only requires that the wireless station delaying the establishment. Therefore, regardless of which station makes the decision to delay

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establishment, as long as the first wireless station delays the establishment, as is the case in Cloutier's invention, the claimed limitation is met by the reference.

Finality of the previous office action is withdrawn as the arguments over Jouppi are persuasive. New grounds of rejections are made FINAL as necessitated by the amendments filed on 04/29/2010.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 9, 10, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billhartz (US 2004/0203820) in view of Desai (US 7,254,141) and Cloutier (US 6,754,189).

Billhartz discloses a method of allocating channels in a mobile ad hoc network including the following features.

Regarding claim 9, a method for controlling the transmission of data between a first and second wireless station over a wireless transmission medium connecting the first and second station (see communications between stations 1-5 in Fig. 2), said method comprising: the first wireless station receiving a request for a new data link having a first channel capacity at a first priority level generated from a first application at the first station (see "a source node transmitting quality-of-service (QoS) route requests..." recited in paragraph [0054], wherein the request must be generated by an application of the source node since the source node is the source of the request); the first wireless station determining an available free capacity of the wireless transmission medium (see "a reply that describes the most that it can support. Accordingly, the source can decide whether the level is good enough or whether to scale back the request..." recited in paragraph [0058]; that is, the other nodes makes a decision and informs the source of the decision and related resource information; the source then determines the available capacity from the received information); the first wireless station determining that the free channel capacity at the first priority level is less than the requested first channel capacity (see "Replying to QoS route requests (block 214) may comprise indicating what traffic routing the node can support based upon the node QoS tag value, when the node cannot support the QoS parameter of the route request" recited in paragraph [0058]).

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Billhartz does not disclose the following features: regarding claim 9, wherein the free channel capacity includes a currently unused capacity and at least a portion of capacity currently allocated to data links having a priority level less than the first priority level; and the first wireless station delaying the establishment of the new data link for a first period of time; regarding claim 10. preventing the degradation of already-existing data links having a priority level equal to the first priority level by excluding from the determination of free channel capacity the capacity currently allocated to data links having a priority level equal to the first priority level; regarding claim 21, the first wireless station establishing the new data link after the first period of time, the second wireless station determining that a second new data link established by the first wireless station having a priority equal to a priority of the one or more existing data link would cause a loss of quality of one or more existing data link; the second wireless station sending a message to the wireless first station instructing the first station to at least temporarily suspend the second new data link for a second period of time; regarding claim 23, wherein the determining that a second data link established by a first wireless station having a priority equal to a priority of the one or more existing data link would cause a loss of quality of the one or more existing links comprises detecting a buffer overflow condition.

Desai discloses a method for allocating bandwidth in a communication network including the following features.

Regarding claim 9, wherein the free channel capacity includes a currently unused capacity and at least a portion of capacity currently allocated to data links having a

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priority level less than the first priority level (see Fig. 3, wherein steps 314 and 318 compares the available capacity with the requested bandwidth; and see “Avail(I), represents available bandwidth for a specific priority I, and is determined based on total bandwidth of the link minus the total bandwidth of all provisional and actual connections of higher or equal priority” recited in column 4, lines 45-50; although Desai discloses the operation for requests received by a switch, each of Billhartz’s wireless nodes is acting as a distributed switch controlling its own connections (see Billhartz paragraphs [0054]-[0057]); therefore, it would be obvious to look to Desai’s method of pre-empting lower classed service to modify Billhartz's invention); the first station determining that the free channel capacity at the first priority level is less than the requested first channel capacity (see “No” branch of step 314 in Fig. 3).

Regarding claim 10, preventing the degradation of already-existing data links having a priority level equal to the first priority level by excluding from the determination of free channel capacity the capacity currently allocated to data links having a priority level equal to the first priority level (see “Avail(I), represents available bandwidth for a specific priority I, and is determined based on total bandwidth of the link minus the total bandwidth of all provisional and actual connections of higher or equal priority” recited in column 4, lines 45-50).

Regarding claim 21, the first wireless station establishing the new data link after the first period of time (see Fig. 3, which shows the steps of establishing a new connection), the second wireless station determining that a second new data link established by the first wireless station having a priority equal to a priority of the one or

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more existing data link would cause a loss of quality of one or more existing data link (see step 314, which determines that the requested bandwidth exceeds the available bandwidth; see “Avail(I), represents available bandwidth for a specific priority I, and is determined based on total bandwidth of the link minus the total bandwidth of all provisional and actual connections of higher or equal priority” recited in column 4, lines 45-50); the second wireless station sending a message to the wireless first station instructing the first station to at least temporarily suspend the second new data link for a second period of time (see reject request 313 in Fig. 3).

Cloutier discloses a method of queue length based burst management in wireless communication system including the following features.

Regarding claim 9, the method further comprises delaying the establishment of the new data link for a first period of time (see “Should sufficient resources be unavailable to accommodate the user, the base station must delay establishing a connection with the user and the user must wait until sufficient resources become available” recited in column 2, lines 58-65; wherein the first period of time is the time the user waits for sufficient resources becoming available).

Regarding claim 21, wherein the second wireless connection is suspended (see “Should sufficient resources be unavailable to accommodate the user, the base station must delay establishing a connection with the user and the user must wait until sufficient resources become available” recited in column 2, lines 58-65; wherein the second period of time is the time the user waits for sufficient resources becoming available).

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Regarding claim 23, wherein the determining that a second data link established by a first wireless station having a priority equal to a priority of the one or more existing data link would cause a loss of quality of the one or more existing links comprises detecting a buffer overflow condition (see “the quantity of data would exceed the buffer size (overflow) and data would be lost” recited in column 6, lines 24-26).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Billhartz using features, as taught by Desai, in order to allow higher priority service to preempt resources held by lower priority services; and to modify the system of Billhartz using features, as taught by Cloutier such that the user rejected of the connection waits for resources to become available in order to make the connection without overloading the capacity of the system or degrading the quality of the desired connection.

5. Claims 11 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Billhartz, Desai and Cloutier as applied to claims 9-10 above, and further in view of Sastry (US 2003/0058871).

Billhartz, Desai and Cloutier disclose the claimed limitations as shown above.

Billhartz, Desai and Cloutier do not disclose the following features: regarding claim 11, wherein a maximum threshold level of capacity currently allocated to data links having a priority less than the first priority level that can be considered as free channel capacity is defined at the first wireless station, and applied in determining free channel capacity, and the method further comprises preventing the first wireless station

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from characterizing all of the channel capacity currently allocated to data links having a priority level less than the first priority level above the maximum threshold level as free channel capacity; regarding claim 19, wherein the threshold level is a percentage of the capacity currently allocated to data links having a priority level less than the first priority level.

Sastry discloses a per hop behavior for differentiated services including the following features.

Regarding claim 11, wherein a maximum threshold level of capacity currently allocated to data links having a priority less than the first priority level that can be considered as free channel capacity is defined at the first wireless station (see "Classes with higher rate priorities receive a higher rate priority percentage of the available bandwidth than classes with lower rate priorities. These allocated rate priority percentages assure each class a minimum percentage of the actual available bandwidth" recited in paragraph [0043]; wherein as shown in Billhartz, determination of channel capacity is performed by the wireless stations of the ad hoc network; and the allocated rate priority of Sastry may be considered as a maximum threshold of capacity allocated to a priority), and applied in determining free channel capacity, and the method further comprises preventing the first wireless station from characterizing all of the channel capacity currently allocated to data links having a priority level less than the first priority level above the maximum threshold level as free channel capacity; (see "Classes with higher rate priorities receive a higher rate priority percentage of the available bandwidth than classes with lower rate priorities. These allocated rate priority

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percentages assure each class a minimum percentage of the actual available bandwidth" recited in paragraph [0043]).

Regarding claim 19, wherein the threshold level is a percentage of the capacity currently allocated to data links having a priority level less than the first priority level (see "Classes with higher rate priorities receive a higher rate priority percentage of the available bandwidth than classes with lower rate priorities. These allocated rate priority percentages assure each class a minimum percentage of the actual available bandwidth" recited in paragraph [0043]).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jouppi, Desai and Cloutier using features, as taught by Sastry, in order to "assure each class a minimum percentage of the actual available bandwidth if the actual available bandwidth degrades from the nominal bandwidth" (see Sastry, paragraph [0043]).

6. Claims 17-18 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Jouppi Desai and Cloutier as applied to claims 9 and 21 above, and further in view of ZHAO (US 2008/0056226).

Jouppi, Desai and Cloutier disclose the claimed limitations as shown above.

Jouppi, Desai and Cloutier do not disclose the following features: regarding claim 17, after the first period of time, the first wireless station determining again that the free channel capacity at the first priority level is less than the requested first channel capacity; and delaying the establishment of the new data link for a second period of

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time, the second period of time equal to the first period of time increased by a discrete value; regarding claim 18, wherein the determining of free channel capacity and delaying of the establishment the new data link is repeated until either the establishment of a data link is permitted or the attempt to establish the new link is finally halted by a termination condition; regarding claim 22, after the second period of time, the second wireless station determining that a third new link established by the first wireless station having a priority equal to a priority of the one or more existing data links would cause a loss of quality of the one or more existing data links; and sending a second message to the first wireless station instructing the first wireless station to at least temporarily suspend the third data link for a third period of time equal to the second period of time increased by a discrete value.

ZHAO discloses a method for maintaining a wireless data connection including the following features.

Regarding claim 17, after the first period of time, the first wireless station determining again that the free channel capacity at the first priority level is less than the requested first channel capacity (see Fig. 3, step 122, in which the connection may be delayed for a second time to the NO branch); and delaying the establishment of the new data link for a second period of time (setting the back off timer again in step 128 of Fig. 3), the second period of time equal to the first period of time increased by a discrete value (see “back off timer is set to ever-increasing values” recited in the abstract).

Regarding claim 18, wherein the determining of free channel capacity and delaying of the establishment the new data link is repeated until either the establishment

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of a data link is permitted or the attempt to establish the new link is finally halted by a termination condition (see Fig. 4, in which the connection is repeated in steps 118, 122, 128 and 130 until the connection is established in step 160).

Regarding claim 22, after the second period of time, the second wireless station determining that a third new link (see Fig. 3, in which an unlimited numbers of new links may be established as the connections are lost and then re-established in steps 124-126) established by the first wireless station having a priority equal to a priority of the one or more existing data links would cause a loss of quality of the one or more existing data links (see Desai Fig. 3, as the requested bandwidth C_i exceeds the available capacity $Avail(I)$); and sending a second message to the first wireless station instructing the first wireless station to at least temporarily suspend the third data (see step 166 in Fig. 4, in which a message is sent to release the connection) link for a third period of time equal to the second period of time increased by a discrete value (see Fig. 4, after step 166, after the connection is lost and the new connection is rejected in step 122, the connection is suspended at least for a back off time period as shown in step 130; see “back off timer is set to ever-increasing values” recited in the abstract; such that the time period is equal to the previous back off period increased by a discrete value).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Jouppi, Desai and Cloutier, in order to maintain an “always-on data connection” (see abstract of ZHAO).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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